

SERIAL NO.: 10/776,376

Docket Number: FA1179 USNA

Claims 1-8 are pending. Claims 1-8 are rejected.

Claims 1-8 have been rejected under 35 USC 102(a) as being anticipated by WO 03/106055 to Flosbach et al.

The Flosbach reference, WO 03/106055 ('055) discloses a coating composition having at least one polyurethane binder, wherein the polyurethane binder has free-radically polymerizable double bonds in the form of (meth)acryloyl groups, and the polyurethane binder also has hydrolyzable alkoxysilane groups. The '055 reference also teaches several variants on how to produce such structures. Accordingly, variant 1, on pages 5-6 of the '055 reference, and also examples 1 and 2, teach a process comprising a step 1 of making a (meth)acryloyl functional polyurethane using conventional methods. The unsaturated double bonds of the (meth)acryloyl groups are then reacted via a Michael addition in step 2 with molecule containing alkoxysilane groups.

Several variations of step 1 are envisioned. In one case, Flosbach proposes to start with a hydroxyalkyl (meth)acrylate and react that with polyisocyanates until the isocyanate is consumed and a (meth)acryloyl polyurethane is formed. Next, an aminoalkoxysilane is added to some of the double bonds via a Michael addition. This proposed process does not form urea bonds, and leaves secondary amino groups intact.

It is an object of applicants' invention to react any secondary amino group with an isocyanate to form a urea bond. Applicants, on page 4 lines 17-20, mentions the importance of not having the secondary amino groups present in the resin so as to minimize any formation of hydrogen bonding that may increase the viscosity of the claimed polyurethaneureas resins. Nowhere does variant of the '055 reference disclose making a polyurethaneurea resin as in the applicants' present invention.

Furthermore, variant 2, on page 6-7 and also example 3 of the '055 reference teaches a method of first producing a secondary aminoalkoxysilane by the Michael addition of a primary amino alkoxysilane with an alkyl (meth)acrylate. This produces a compound having one secondary amino group. This molecule is then reacted with an excess of polyisocyanate to form a urea compound having free isocyanate groups. The residual isocyanate groups are then reacted with hydroxyalkyl (meth)acrylates. Several variations of this are proposed. In all proposed methods of variant 2, the only multi-functional compound used is the polyisocyanate. There is no polymer formed, as there is

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no 'repeat unit' in the molecule. The isocyanate groups of the polyisocyanate are 'capped' with either the secondary amino silane moiety or hydroxyalkyl (meth)acrylates. The '055 reference terms this a polyurethane because it has several urethane bonds (ie poly ureas) in the same molecule. Yet, clearly this is not polymer as is Applicants' polyurethaneurea resin polymer.

Moreover, in contrast Applicants' inventive claim 5 forms a preadduct from a hydroxy-functional (meth)acrylate and an aminoalkyl alkoxysilane, thus forming an adduct having both amino and hydroxyl functional groups. This preadduct is reacted with a polyisocyanate containing compound or polymer, forming a polyurethaneurea resin that is polymeric.

Inventive claim 6 forms a compound similar to claim 5 via a different process. This process includes reacting a polyisocyanate containing compound or prepolymer with hydroxy-functional (meth)acrylates. This is then reacted with aminoalkyl alkoxysilanes via a Michael addition to give a polyurethane having more than one secondary amino groups. This product is finally reacted with polyisocyanates to form the inventive polyurethaneurea resins.

As the '055 reference does not produce the same polyurethaneurea resins as the applicants' invention, a rejection under 35 USC 102(a) cannot be maintained. Accordingly, withdrawal of the rejection under 35 U.S.C. 102(a) is respectfully requested.

Claims 1-8 are rejected under 35 USC 103(a) as being unpatentable over WO 03/106055 to Flosbach et al. Applicants traverse the rejection. Applicants incorporate by reference the arguments presented above in response to the rejection under 35 USC 102(a). In addition, Applicants point out that the '055 reference does not teach or suggest producing the polyurethaneurea resin polymer of the Applicants' invention. Further, the importance of avoiding secondary amino groups is not disclosed nor suggested. For these reasons, the rejection under 35 USC 103(a) cannot be maintained, and withdrawal is proper.

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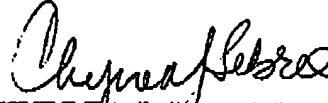
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CONCLUSION

In view of the foregoing, Applicants respectfully request allowance of pending claims 1-8.

Respectfully submitted,



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Dated: September 8, 2006